START

0024328

ENGINEERING CHANGE NOTICE

Page 1 of 2

1. ECN 113835
Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.	4. Date
Supplemental ☐ Direct Revision ☒ Change ECN ☐ Temporary ☐ Supersedure ☐ Discovery ☐ Cancel/Void ☐	P. J. Valcich, 100/300 Remed. Sect., H4-55- 6-6686	10-21-92
	5. Project Title/No./Work Order No. RIVERLAND ERA PB621	6. Bldg./Sys./Fac. No. NA
	7. Impact Level 3 Q S
	8. Document Number Affected (include rev. and sheet no.) WHC-SD-EN-AP-102, Rev 0	9. Related ECN No(s). NA
	10. Related PO No. NA

11a. Modification Work	11b. Work Package Doc. No.	11c. Complete Installation Work	11d. Complete Restoration (Temp. ECN only)
☐ Yes (fill out Blk. 11b) ☒ No (NA Blks. 11b, 11c, 11d)	NA	NA Cog. Engineer Signature & Date	NA Cog. Engineer Signature & Date

12. Description of Change

Revised Document to incorporate Washington State Department of Ecology and EPA comments.

13a. Justification (mark one)	13b. Justification Details
Criteria Change ☐ Design Improvement ☐ Environmental ☒ As-Found ☐ Facilitate Const. ☐ Const. Error/Omission ☐ Design Error/Omission ☐	Revision required for Regulator approval.

14. Distribution (include name, MSIN, and no. of copies)
* Adv. Copy
*P. J. Valcich, H4-55, 1 Copy

RELEASE STAMP

OFFICIAL RELEASE BY WHC (20)
DATE OCT 27 1992
Sta. 21

A-7900-013 (11/88)

ENGINEERING CHANGE NOTICE

1. ECN (use no. from pg. 1) 113835

15. Design Verification Required	16. Cost Impact		17. Schedule Impact (days)
	ENGINEERING	CONSTRUCTION	
☐ Yes	Additional ☐ $	Additional ☐ $	Improvement ☐
☒ No	Savings ☐ $	Savings ☐ $	Delay ☐

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	☐	Seismic/Stress Analysis	☐	Tank Calibration Manual	☐
Functional Design Criteria	☐	Stress/Design Report	☐	Health Physics Procedure	☐
Operating Specification	☐	Interface Control Drawing	☐	Spares Multiple Unit Listing	☐
Criticality Specification	☐	Calibration Procedure	☐	Test Procedures/Specification	☐
Conceptual Design Report	☐	Installation Procedure	☐	Component Index	☐
Equipment Spec.	☐	Maintenance Procedure	☐	ASME Coded Item	☐
Const. Spec.	☐	Engineering Procedure	☐	Human Factor Consideration	☐
Procurement Spec.	☐	Operating Instruction	☐	Computer Software	☐
Vendor Information	☐	Operating Procedure	☐	Electric Circuit Schedule	☐
OM Manual	☐	Operational Safety Requirement	☐	ICRS Procedure	☐
FSAR/SAR	☐	IEFD Drawing	☐	Process Control Manual/Plan	☐
Safety Equipment List	☐	Cell Arrangement Drawing	☐	Process Flow Chart	☐
Radiation Work Permit	☐	Essential Material Specification	☐	Purchase Requisition	☐
Environmental Impact Statement	☐	Fac. Proc. Samp. Schedule	☐	_____	☐
Environmental Report	☐	Inspection Plan	☐	_____	☐
Environmental Permit	☐	Inventory Adjustment Request	☐	_____	☐

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number/Revision

20. Approvals

OPERATIONS AND ENGINEERING	Signature	Date
Cog./Project Engineer	PJ Valcich	10-21-92
Cog./Project Engr. Mgr.	GC Henckel	10/22/92
QA		10-23-92
Safety		10/22/92
Security		
Proj.Prog./Dept. Mgr.		
Def. React. Div.		
Chem. Proc. Div.		
Def Wst. Mgmt. Div.		
Adv. React. Dev. Div.		
Proj. Dept.		
Environ. Div.		
IRM Dept.		
Facility Rep. (Ops)		
Other		

ARCHITECT-ENGINEER	Signature	Date
PE		
QA		
Safety		
Design		
Other		
DEPARTMENT OF ENERGY		
ADDITIONAL		

SUPPORTING DOCUMENT

1. Total Pages 53

2. Title	3. Number	4. Rev No.
Riverland Expedited Response Action Project Plan	WHC-SD-EN-AP-102	1

5. Key Words

Riverland Railroad Yard, Munnitions Cache, Anti-Aircraft Artillery, Homesteads, 100-IU-1 Operable Unit, Characterization Activities, Screening of Alternatives, Project Schedule, Sampling Plan

6. Author

Name: P. J. Valcich

Signature 10/21/92

Organization/Charge Code 81351/PB621

APPROVED FOR PUBLIC RELEASE

7. Abstract

The document contains the Riverland Expedited Response Action Project Plan. The Plan describes the site characterization activities, preliminary screening of alternatives, site evaluation tasks, ERA proposal tasks, and Project Schedule.

8. PURPOSE AND USE OF DOCUMENT - This document was prepared for use within the U.S. Department of Energy and its contractors. It is to be used only to perform, direct, or integrate work under U.S. Department of Energy contracts. This document is not approved for public release until reviewed.

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9. Impact Level 3QS

10. RELEASE STAMP

OFFICIAL RELEASE BY WHC 20

DATE OCT 27 1992

Sta. 21

RECORD OF REVISION

(1) Document Number: WHC-SD-EN-AP-102

(2) Title: Riverland ERA Project Plan

CHANGE CONTROL RECORD

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release	
		(5) Cog. Engr.	(6) Cog. Mgr. Date
0	(7) EDT-159721, dtd. 9/2/92		
1 RS	Incorporated Regulator Editorial Comments.	M Leal 10/22/92	10/22/92

CONTENTS

ATTACHMENTS

FIGURES

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1.0 INTRODUCTION

1.1 PURPOSE

This document provides the plan for conducting the Riverland Expedited Response Action (ERA). The U.S. Environmental Protection Agency (EPA) and Washington State Department of Ecology (Ecology) requested this ERA (EPA 1992) in their July 8, 1992, letter to the U.S. Department of Energy-Richland Field Office (DOE-RL), Hanford Project Manager.

1.2 BACKGROUND

This Riverland ERA includes various waste sites within the 100-IU-1 Operable Unit (Figures 1 and 2).

The 100-IU-1 Operable Unit (about 15 mi^2) is bounded by Washington State Route 240 on the east, Washington State Highway 24 on the south, Hanford Site boundary on the west, and the Columbia River on the north. Currently, the unit contains the following potential hazardous waste sites: Riverland Rail Wash Pit and Munitions Cache Waste Information Data System (WIDS) sites (WHC 1991), Anti-Aircraft Artillery (AAA) sites, military exercise sites, and various homestead sites.

The Riverland Rail Yard was constructed in 1943 to support Hanford construction and operational activities (Figure 3). It was the terminus of the Milwaukee Railroad. All rail freight destined for the Hanford Site was delivered to the Riverland Rail Yard during the early years of the Hanford Manhattan Engineering District Project. The site includes a 12,000-gal underground diesel fuel storage tank and distribution piping system.

The Riverland Rail Yard operated from 1943 until October 1954 when operations were transferred to the new 1100 Area, 1171 Building railroad maintenance facility. Railroad rolling stock radioactive decontamination continued in the locomotive house maintenance pits until 1956. About 1963 the Riverland facilities were decontaminated, demolished, and their foundations covered with fresh soil. Follow-up surveys in 1977 (Fix 1977) and in 1978 (Wood 1978) found only background radiation levels.

The AAA sites (numbers 70 and 71) were established in 1951 (Figure 4). Nike missile battery sites started replacing the artillery sites in 1954. Only a rock walkway and concrete step remnants remain at the number 71 AAA site. Various foundations and cleared areas remain at the number 70 AAA site.

Past military exercises have left discarded equipment, battery packs, ammunition, and debris scattered across the Hanford Site. There is a munitions cache that was removed on May 22, 1986, and destroyed at the Yakima Firing Range (WHC 1991).

Various homestead sites have debris piles, cisterns, and fence wire marking the sites. Most of these homestead sites are eligible for inclusion on the National Register of Historic Places (36 CFR Section 60 and 800). There is a large commercial fish farm trash pile at the McGee farm site.

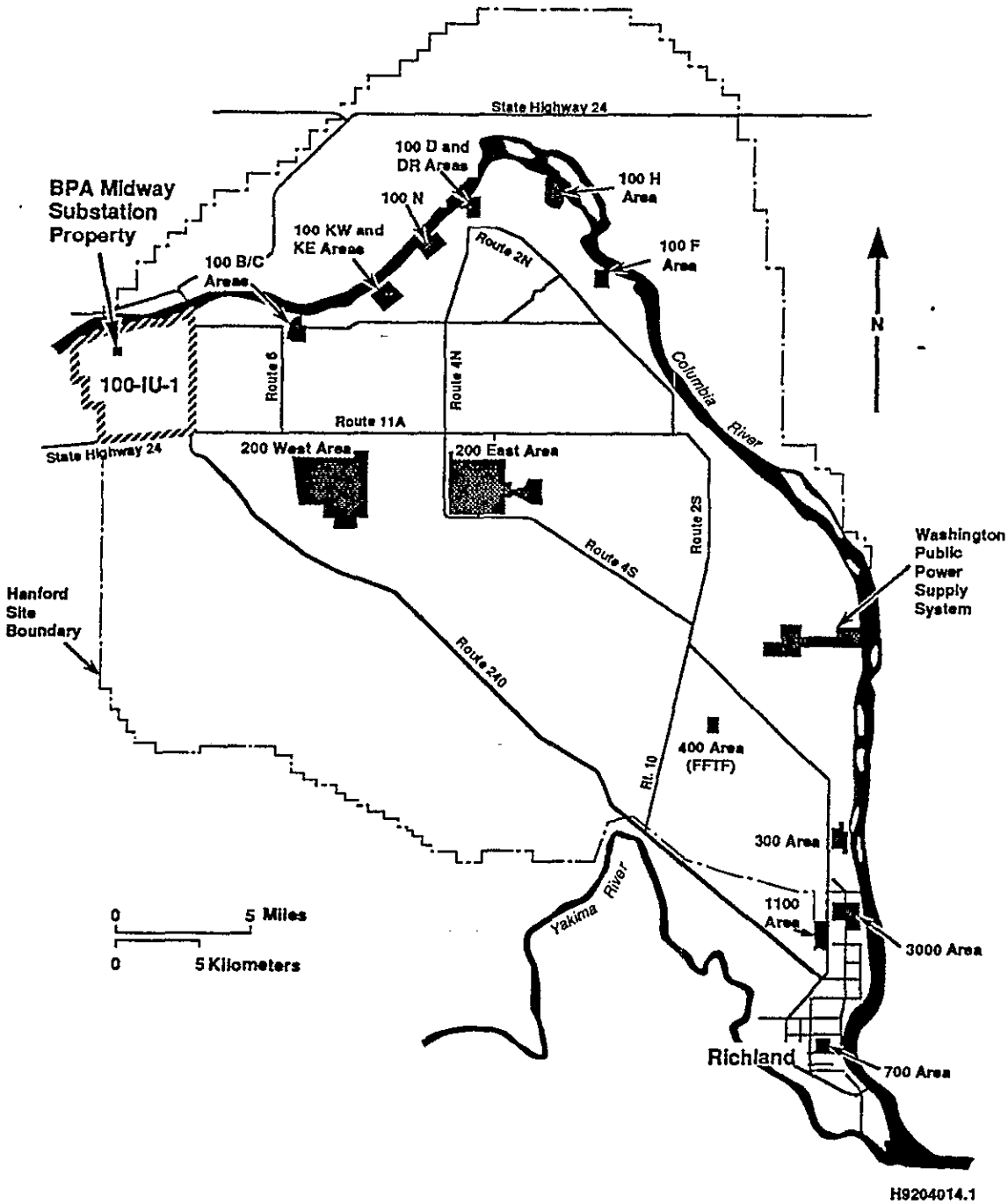

Figure 1. Riverland ERA Site Map.

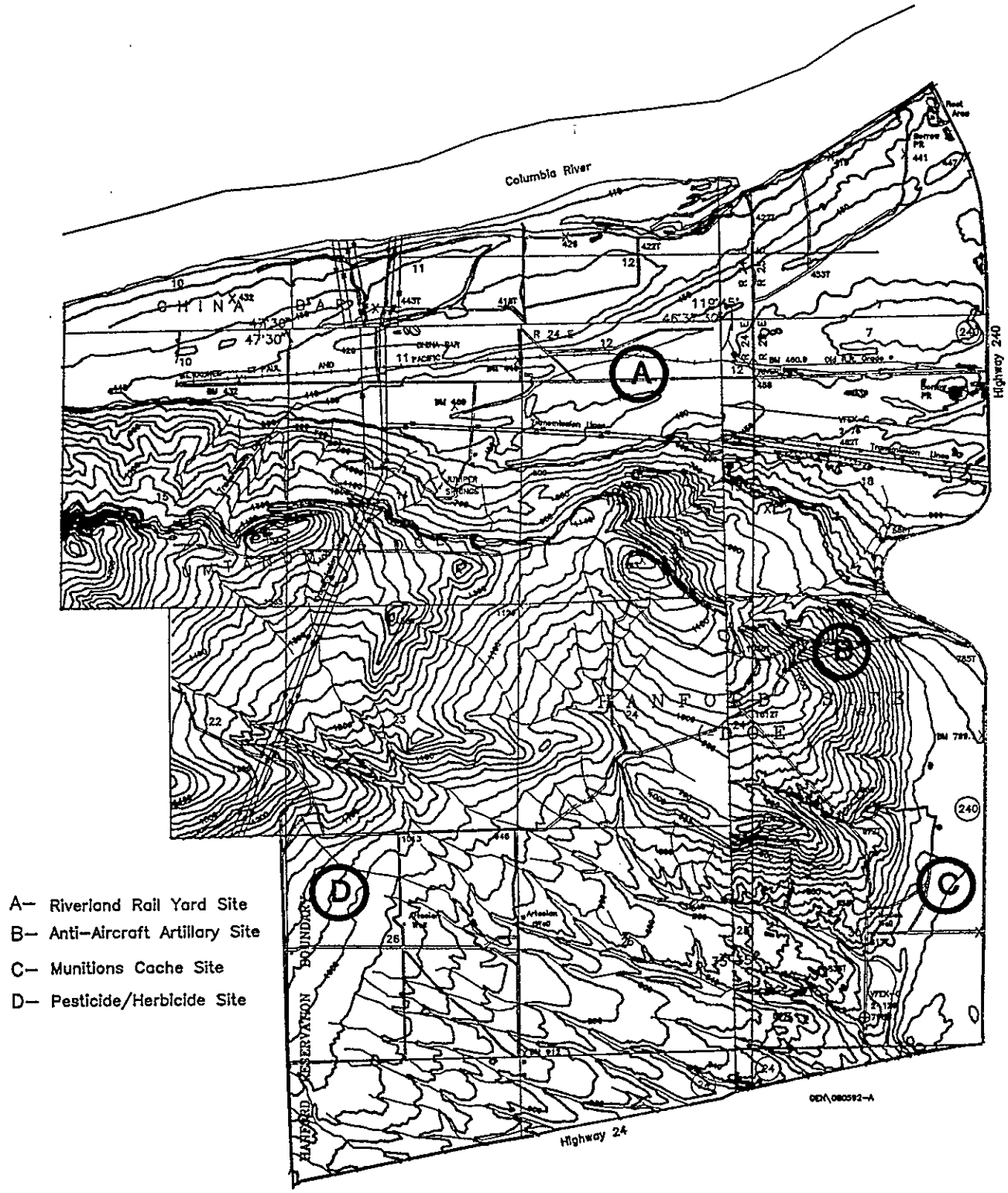

Figure 2. Waste Site Locations.

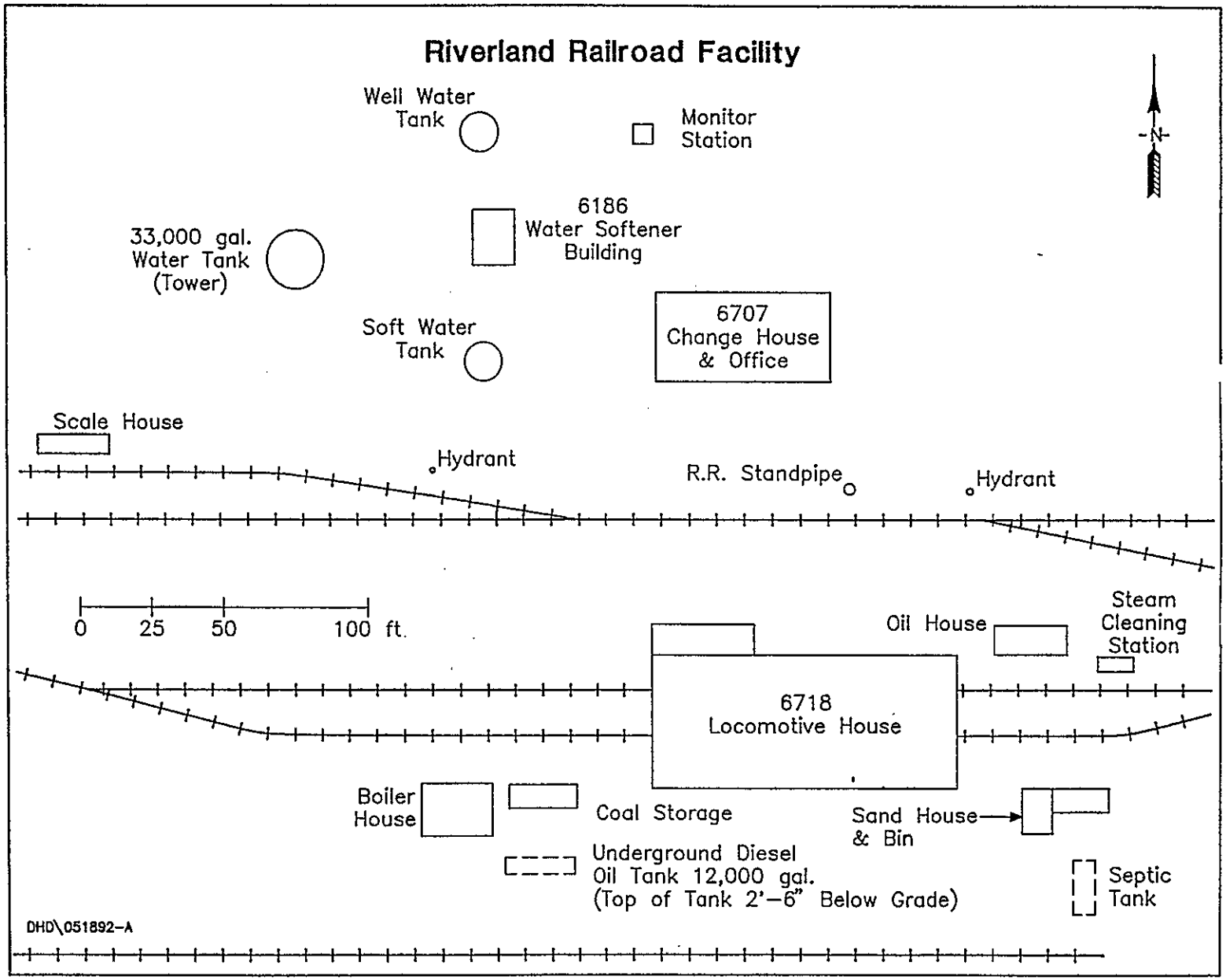

Figure 3. Riverland Rail Yard Complex.

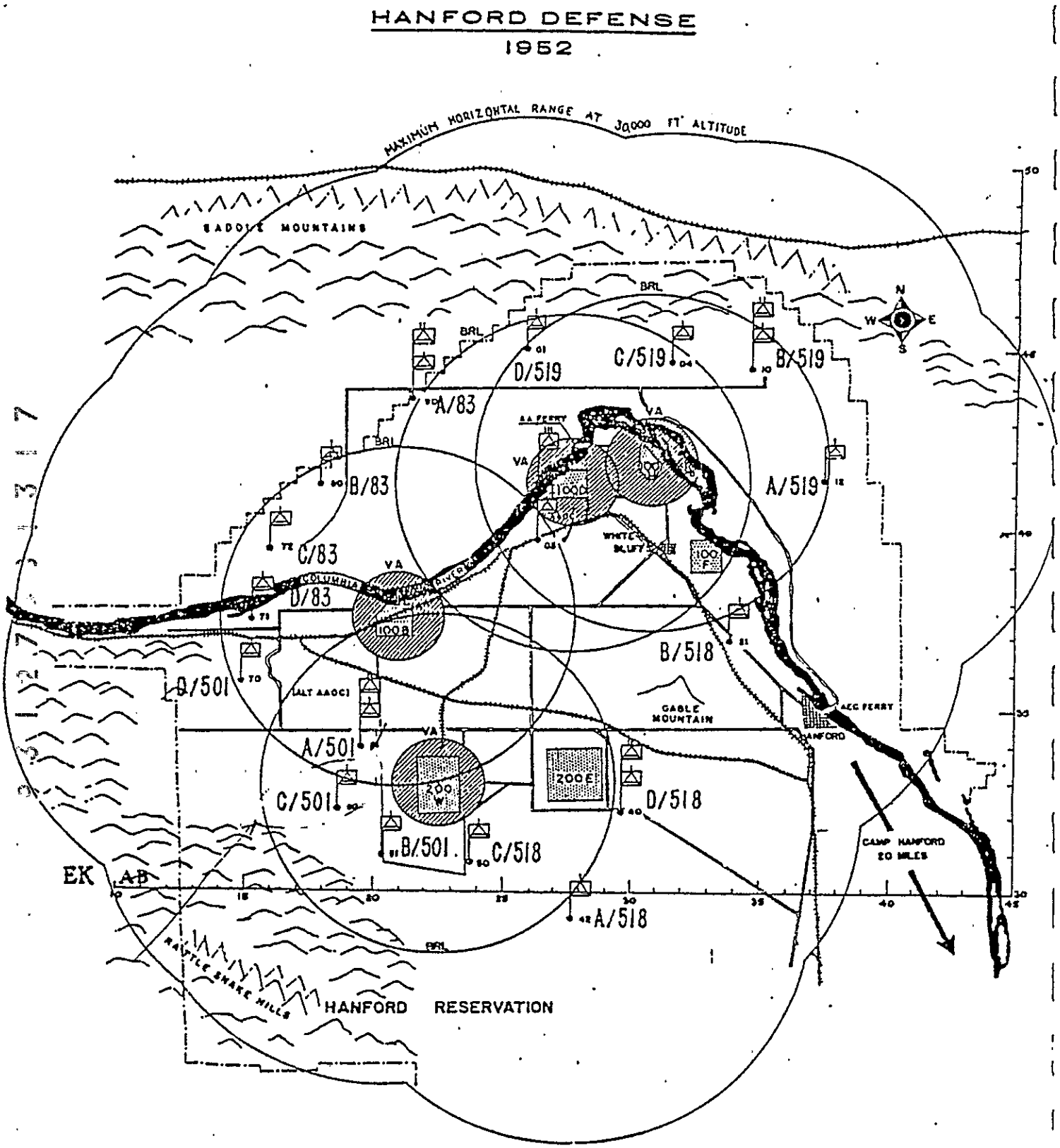

Figure 4. 1952 Hanford Defense Map.

1.3 ORGANIZATION

The Riverland ERA is classified as non-time critical. A planning period of at least 6 months exists before initiating ERA field activities.

This plan uses historical site data obtained from reference files (WHC 1991) and initial characterization activities. Section 2.0 presents the sites physical and environmental characteristics. Section 3.0 provides a preliminary remedial action evaluation. Section 4.0 describes the site evaluation data goals and tasks supporting the ERA proposal. Section 5.0 presents a brief description of the ERA proposal contents and the associated review and approval process. Section 6.0 provides a brief implementation process description. Section 7.0 presents the project schedule. Section 8.0 contains all references used.

Attachments include support plans necessary to manage, conduct, and control the project.

- Attachment 1: Sampling and Analysis Plan
- Attachment 2: Quality Assurance Project Plan
- Attachment 3: Health and Safety Plan
- Attachment 4: Project Management Plan
- Attachment 5: Data Management Plan
- Attachment 6: Community Relations Plan.

2.0 SITE CHARACTERIZATION

The ERA characterization objective is to generate data to determine if any environmental hazards exist, their nature, and extent. The data generated will be used in the Riverland ERA Proposal document.

Site characterization activities will occur at the Riverland Locomotive House maintenance pits, railroad underground fuel storage tank site, AAA sites, military exercise sites, munitions cache site, and some homestead sites. Representative and specific locations will be investigated at the site. Site characterization activities will consist of nonintrusive ground-penetrating radar (GPR) and electromagnetic induction (EMI) surveys, and sampling.

2.1 RADIOACTIVE SURVEYS

The GPR and EMI surveys will locate the maintenance pits and associated floor drain system. The railroad maintenance pits will be excavated, surveyed, and sampled for radioactive contamination. The pit drain system will be sampled at both ends. This is the only potential radioactive site in the 100-IU-1 Operable Unit.

2.2 SURVEYS

Visual surveys will be performed at the AAA, military exercise, and homestead sites (Figure 2) to identify actual hazardous sites.

A GPR survey will determine the existence or non-existence of the underground fuel tank. If the tank exists, it will be assigned to the Orphan Tank Program for removal as funding allows.

The AAA surveys will look for areas that may indicate buried hazardous material. AAA site 70 has an underground tank that is marked for water. Ongoing research and GPR/EMI surveys may indicate additional areas of concern.

Military exercise sites are scattered throughout the operable unit. Debris includes abandoned munitions, wire, shell casings, and communication batteries. All munitions found will be placed in a central location for the U.S. Army to collect and dispose of. The batteries will be collected and disposed as hazardous waste. Various shell casings and wire will be collected and disposed in the central landfill.

The homestead sites contain cisterns, refuse piles, and at least one insecticide/fungicide empty can site. The cisterns and refuse piles will be visually inspected for hazardous materials. If none are found, the sites will be left as found for future archeological research. The empty insecticide/fungicide can site will be sampled and the cans collected for disposal.

2.3 SAMPLING

Sampling consists of field screen samples (field screening) and qualified laboratory verification and validation. All activities will be recorded in the field logbook.

The maintenance pits and floor drain system will be field screened and sampled for radiation levels and diesel fuel.

The munitions cache site and a homestead insecticide/fungicide can site will be nonintrusive field screened. Nonintrusive sampling shall consist of collecting soil samples to a 1 ft or less depth.

The Hanford Environmental Information System (HEIS) shall record all sample results.

The sampling and analysis plan is provided as Attachment 1.

3.0 PRELIMINARY SCREENING OF ALTERNATIVES

This section provides preliminary identification and screening of remedial action alternatives based on the initial characterization activities and ERA preliminary assumption. Preliminary screening uses the known characterization results to develop and analyze the alternatives.

The preliminary screening does not replace the formal ERA proposal engineering evaluation and cost analysis (EE/CA) screening process. Alternatives not retained here may be re-evaluated in the comprehensive EE/CA screening.

3.1 PRELIMINARY ASSUMPTION

The Riverland Locomotive House pits were decontaminated to background levels before the building was torn down. The underground fuel tank is still in place. The remaining 100-IU-1 Operable Unit sites present no environmental hazards.

3.2 SCREENING EVALUATION

Characterization activities provide the database used to evaluate the initial remedial action alternatives and to generate additional feasible alternatives.

The initial remedial action alternatives are:

- No action
- Decontaminate the maintenance pits, assign the fuel tank to the Orphan Tank Program, and dispose military and homestead hazardous waste debris
- Remove the fuel tank and maintenance pits and dispose military and homestead hazardous waste debris.

Screening uses timeliness, feasibility, environmental protection, and cost as selection criteria. Alternatives that pass the screening will be further evaluated in the EE\CA.

4.0 SITE EVALUATION TASKS

Site evaluation tasks will collect data for one or more of the following purposes:

- Identify health and safety concerns
- Verify and refine the preliminary assumptions
- Support EE/CA alternative development and evaluation.

Results will be reported in the ERA proposal.

4.1 DATA OBJECTIVES

The primary site evaluation objective is to use field screening methods to generate data. The data will support the site evaluation tasks.

The EPA devised an analytical level classification system (EPA 1987) that provides increased data quality as the scale increases. Level I consists of field screening methods. Level II entails more advanced onsite analytical techniques. Level III concerns standard laboratory program procedures. Level IV consists of EPA contract laboratory program procedures. Level V addresses specially developed procedures where standard methods are not available or requires a high degree of analytical sensitivity.

A Westinghouse Hanford Company (WHC) site-specific analytical classification fulfills the EPA data quality goals. It consists of two data quality levels: (1) field or laboratory screening and (2) validated laboratory analyses (McCain and Johnson, 1990). Field screening or laboratory confirmation is equal to EPA levels I, II, and III. Validated laboratory analyses are equal to EPA levels IV and V.

4.2 FIELD INVESTIGATION TASKS

Initial site investigation tasks are radiation surveys and field screening. Since the exact field conditions (contamination levels and types) are unknown, evaluation task changes may occur during the investigation. Task changes will be documented.

Due to field conditions, the sample plan may require changes. Minor changes will require, as a minimum, the verbal approval of the field team leader and the cognizant project engineer. In this situation, the field team leader will submit changes on the Sampling Project Change Form (Figure 1-1). An Engineering Change Notice (ECN) will be released per EP-2.2 (WHC 1988d) by the project engineer. The project file will contain a copy. Major changes to the plan will require lead regulatory agency concurrence.

4.3 DATA EVALUATION

The site evaluation results will be used to define the extent of efforts necessary to remediate the site. The effort may support a no further action alternative and a subsequent 'record of decision'.

5.0 ERA PROPOSAL AND ACTION MEMORANDUM

The ERA proposal provides the EPA, Ecology, and the public with information that defines the origin, nature, and extent of site contamination; evaluates viable remedial technologies; and recommends a preferred remedial action.

The ERA requires an evaluation of remedial technologies through preparation of an EE/CA. A non-time critical ERA requires the EE/CA to use specific screening factors and selection criteria to assess the feasibility, appropriateness, and costs to reduce and/or eliminate the environmental hazards present. The proposal will undergo a WHC review before a concurrent DOE-RL, EPA, and Ecology 30-day review and comment period. Reviewer comments will be dispositioned and the revised proposal will then have a 30-day public review. The EPA and Ecology will then be requested to approve the document after disposition of the public comments.

6.0 ERA IMPLEMENTATION

Following the Action Memorandum, the preferred alternative can be implemented. The necessary permits, equipment, and other resources will be obtained and scheduled as necessary to support the ERA.

7.0 PROJECT SCHEDULE

The Riverland ERA project schedule is shown in Figure 5.

8.0 REFERENCES

Ecology, 1990, *Community Relations Plan for the Hanford Federal Facility Agreement and Consent Order*, Washington State Department of Ecology, Olympia, Washington.

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EPA, 1986, *Test Methods for Evaluating Solid Waste Physical/Chemical Methods*, SW-846, U.S. Environmental Protection Agency, Washington, D.C.

EPA, 1987, *Data Quality Objectives for Remedial Response Activities: Development Process*, EPA/540/6-87/003, Office of Emergency and Remedial Response and Office of Waste Programs Enforcement, U.S. Environmental Protection Agency, Washington, D.C.

EPA, 1992, *Approval to Proceed on Expedited Response Action at the River Rail Wash Pit*, U.S. Environmental Protection Agency, Washington, D.C.

Fix, 1977, *Railroad Surveys*, Pacific Northwest Laboratories, Richland, Washington.

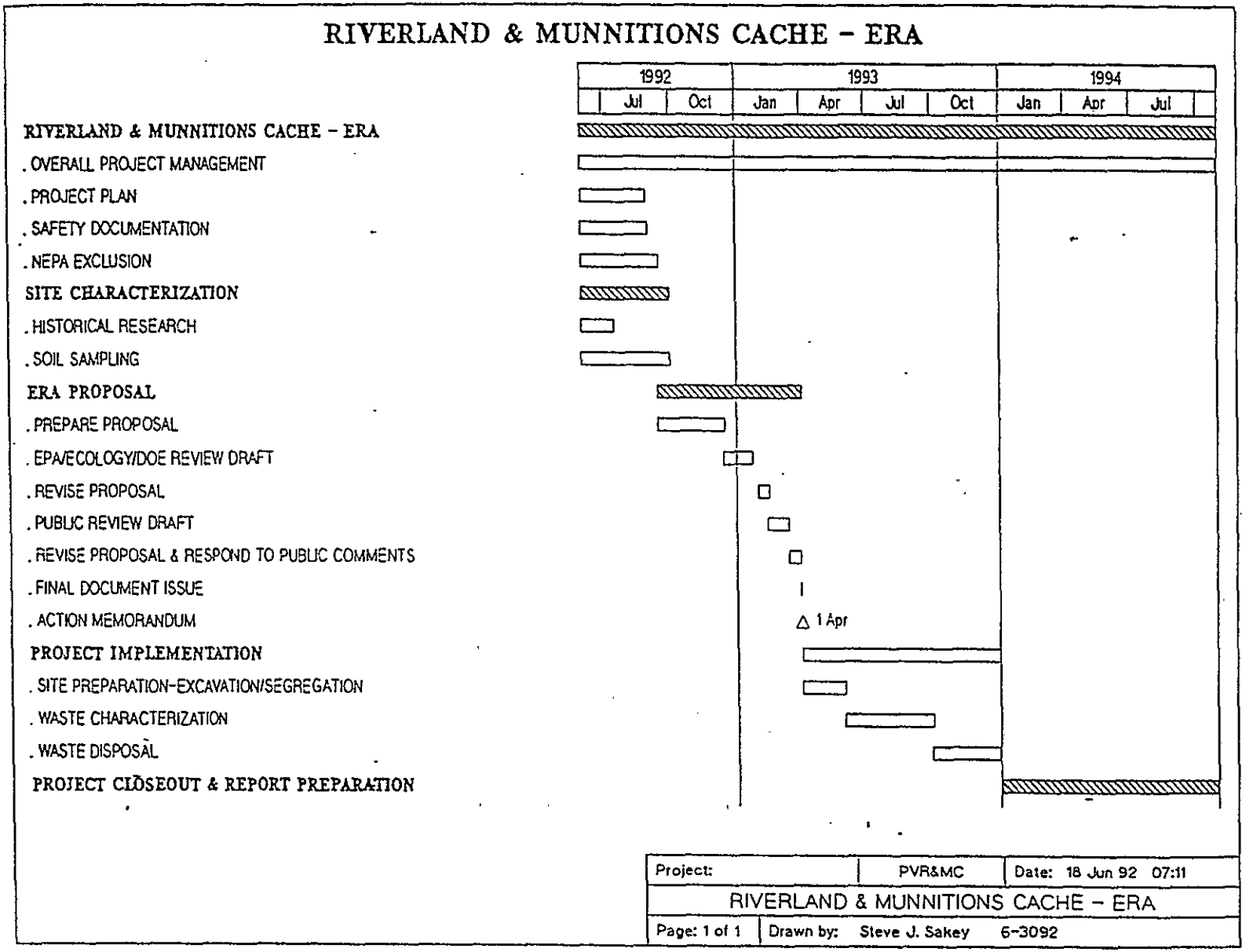

Figure 5. Project Schedule.

McCain, R. G., W. L. Johnson, 1990, *A Proposed Data Quality Strategy for Hanford Site Characterization*, WHC-SD-EN-AP-023, Westinghouse Hanford Company, Richland, Washington.

WHC, 1988a, *Environmental Compliance Manual*, WHC-CM-7-5, Westinghouse Hanford Company, Richland, Washington.

WHC, 1988b, *Environmental Investigations and Site Characterization Manual*, WHC-CM-7-7, Westinghouse Hanford Company, Richland, Washington.

WHC, 1988c, *Radiation Protection*, WHC-CM-4-10, Rev. 14, Westinghouse Hanford Company, Richland, Washington.

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WHC, 1989, *Westinghouse Hanford Company Quality Assurance Manual*, WHC-CM-4-2, Westinghouse Hanford Company, Richland, Washington.

WHC, 1990, *Environmental Engineering, Technology, and Permitting Function Quality Assurance Program Plan*, WHC-EP-0383, Westinghouse Hanford Company, Richland, Washington.

WHC, 1992a, *Data Validation Procedures for Radiological Analysis*, WHC-SD-EN-SPP-001, Westinghouse Hanford Company, Richland, Washington.

WHC, 1992b, *Data Validation Procedures for Chemical Analysis*, WHC-SD-EN-SPP-002, Westinghouse Hanford Company, Richland, Washington.

WHC, 1992c, *Industrial Safety Manual - Volume 4*, Westinghouse Hanford Company, Richland, Washington.

WHC, 1991, *Waste Information Data System*, Westinghouse Hanford Company, Richland, Washington.

Wood, 1978, *Riverland Sediment Sampling*, Rockwell Hanford Operations, Richland, Washington.

ATTACHMENT 1

SAMPLING AND ANALYSIS PLAN

CONTENTS

FIGURE

TABLE

1.0 SCOPE OF WORK

The sampling and analysis plan supports the Riverland Expedited Response Action (ERA) characterization activities. It provides guidance for field personnel. The sampling plan's scope is the collection of soil and concrete samples to determine the nature and extent of contamination.

2.0 HEALTH AND SAFETY

Each task associated with each characterization activity will have site specific safety documentation in accordance with Environmental Investigation Instruction (EII) 2.1, Preparation of Hazardous Waste Operation Permits (WHC 1988b) and WHC (1992c). All safety related documents will be reviewed and approved by Industrial Hygiene and Safety. The documents will be addressed in a pre-job safety meeting prior to start of work.

3.0 SAMPLING AND FIELD ACTIVITIES

3.1 LOCATION

The plan addresses soil and concrete sampling within the identified boundaries of the Riverland ERA project. The site description is in the project plan Sections 1.2 and 2.0.

3.2 CONTAMINANTS OF CONCERN

The primary hazardous constituents of concern are:

- Riverland Rail Yard--Radionuclides, total petroleum hydrocarbons (diesel fuel range) and acetone.
- Homestead Sites--Pesticides and herbicides.
- Munitions Cache--Nitrates

Currently, no environmental hazards have been identified at the AAA site. Ground-penetrating radar surveys have not identified any anomalies of concern.

Samples analysis will be per Section 4.0.

3.3 FIELD SCREENING

Field screening will support the sample(s) selection for qualified laboratory analysis. Potential sample sites will be field screened for evidence of radiation and volatiles where applicable.

Radiation screening is only necessary at the Riverland Rail Yard maintenance pits. The site was radiologically released in 1963 prior to decommissioning. Radiation levels will be monitored once excavation activities start. Health Physics Technicians will be present for these activities.

The organic vapor analyzer will be used for volatile screening. It will be checked daily in accordance with EII 3.2, Calibration and Control of Monitoring Instruments (WHC 1988b).

The Riverland Rail Yard maintenance pits were periodically cleaned by scrubbing the concrete with brooms, diesel fuel, and water. The wash solutions drained to the pit drain system. This system drained to the south side of the building. A test pit will be constructed at the end of the drain system to sample for radionuclides and volatiles.

All field screening activities will be recorded in the field logbook (WHC 1988b) and if required, on a Hazardous Waste Site Monitoring Log (WHC form BC-6000-717 (05/91)).

3.4 SAMPLE COLLECTION

Sample activities will vary for each individual site. A documented sampling schedule is not viable due to many uncontrollable factors (sampling personnel and craft availability, etc.) that will effect the schedule. Sampling will be done as soon as possible since the results are needed for the ERA proposal document. The field team leader will determine the actual sampling location. The following sampling collection methods will be used:

- Riverland maintenance pits--4 concrete chip samples and 1 soil sample from one test pit (Figure 1-1).
- Homestead Site--1 nonintrusive soil surface samples at the herbicide/pesticide site (Figure 2, location D).
- Munitions cache--1 nonintrusive soil surface sampling from the cache hole (Figure 2, location C).

The field team leader will record all field findings, sampling activities, and locations in accordance with EII 1.5, Field Logbook (WHC 1988b).

3.4.1 Nonintrusive Surface Sampling

Nonintrusive surface sampling depth limits for collecting soil samples is 1 ft or less. Sample collection will use separate decontaminated hand tools (i.e., spoons, trowels) for each sample point and shall be accomplished per EII 5.2, Soil and Sediment Sampling (WHC 1988b). Analytical laboratory specified sample containers with full quality assurance (QA) certification will be used.

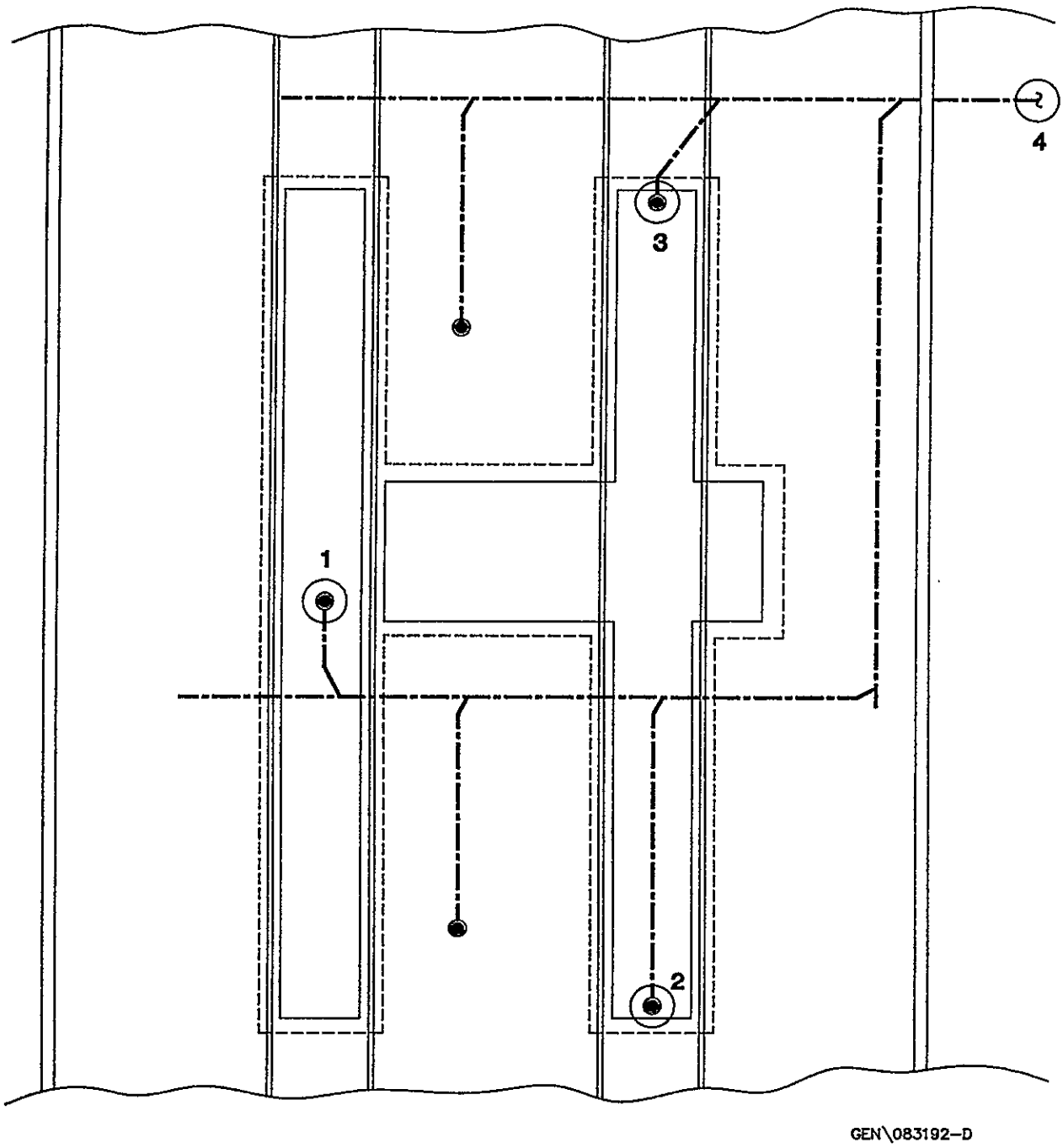

Figure 1-1. Railroad Maintenance Shop Sample Locations.

A composite soil sample will be collected at the homestead/pesticide site. Empty 5- and 1-gal containers cover about a 15 ft^2 area. Surface soil will be collected within this area for a composite sample.

Following collection, samples will be labeled, packaged, and sent to a qualified laboratory for analysis. All samples sent for qualified laboratory analysis will be labeled and tracked using Hanford Environmental Information System (HEIS) identification numbers be accomplished per EII 5.10, Obtaining Sample Identification Numbers and Accessing HEIS Data (WHC 1988b). Sample packaging is done per EII 5.11, Sample Packaging and Shipping (WHC 1988b). A chain of custody starts and is maintained after the sample is collected. The chain of custody is done per EII 5.1 Chain of Custody (WHC 1988b).

3.4.2 Excavations

Test pits or trenches will allow access for soil sampling and characterization at depths greater than 1 ft. A backhoe will excavate the test pits or trenches. Excavations will comply with EII 5.2, Soil and Sediment Sampling (WHC 1988b).

Excavations will uncover the Riverland Rail Yard maintenance pits for sampling. The pits are 3 ft deep.

The pit drain system routes to the building's south side. It is assumed the drain empties into a french drain. The initial french drain sample pit depth will be 10 ft. Field screening will monitor the excavation activity for radiation and volatiles (total petroleum hydrocarbons - diesel fuel and acetone). A sample will be collected at the first indication of contamination. A second sample will be collected at the pit base as determined by the field team leader. If field screening finds no contamination, a validation sample will be collected at the pit base.

Due to the degree of unknown conditions prior to starting and during excavation activities, the sampling parameters are guidelines. As a minimum one sample will be collected at the pit base as described above. Additional sample collections will depend on the following criteria:

- Results of field monitoring and screening
- Discolored soil
- Field team leader discretion.

Sample collection will be from about the center of the backhoe bucket load before placing the material on the ground. Sample collection and handling will follow Section 3.4.1, Nonintrusive Surface Sampling.

All excavated materials will be returned to the excavations after sampling activities are complete. Any highly contaminated soil will be returned to the excavation and covered with additional clean fill as directed by the field team leader, site safety officer, and/or health physics technician.

3.4.3 Concrete Chip Sampling

The Riverland Rail Yard maintenance facility pits are concrete lined. Radiation decontamination of locomotives and cars occurred here. The pits are about 3 ft deep and about 6 ft wide. Following building demolition, clean soil was used to fill and cover them about 2 ft deep. Drawings show that the pits contain three floor drains. Concrete samples will be collected from the walls and adjacent floor drain areas. An additional sample (location determined in the field) will be collected from an adjacent concrete foundation as a background sample. Radiation screening will take place during excavation and sample collection activities.

A portable pneumatic scabbler with chipping bits will chip the top 1/4 in. of concrete for sample collection. Concrete chips and powder will be collected with separate clean hand tools (spoons, towels, etc.). Subsequent handling will follow guidelines stated in Section 3.4.1. Samples of the collected concrete will be sent to 222-S Laboratory for total activity screening.

Between sampling locations, the scabbler bits will be field decontaminated per EII 5.4, Field Decontamination of Drilling, Well Development, and Sampling Equipment and EII 4.3, Control of CERCLA and Other Past-Practice Investigation Derived Waste, (WHC 1988b). The sampling site and scabbler bits may be kept damp with distilled water for dust and contamination control.

In the event portions of the pit floor allow accessibility to the underneath soil, soil samples may be collected. The field team leader will make this determination.

4.0 ANALYSES

Qualified laboratory sample analysis shall be according to EPA protocols (EPA 1986). Laboratory sample analysis (Table 1-1), excluding radiological parameters, shall satisfy EPA level IV or V requirements for verification and validation.

Table 1-1. Laboratory Sample and Analysis.

Parameters of interest	Analytical method (TMA/Weston)	Target detection limit	Precision	Accuracy
Volatiles	Contract Laboratory Procedure (CLP)	10 µG/Kg	±24%	±62-137%
Diesel Total Petroleum Hydrocarbons	CLP	1 mg/L	±20%	±30%
Nitrates	CLP	1.25 mg/L	±20%	±75-125%
Pesticides /Herbicides	CLP	80.0 µG/Kg	±50%	±42-139%
Gamma spec	RC-30/Pro-042-5	0.5 pCi	±35%	±35%

5.0 QUALITY ASSURANCE/QUALITY CONTROL REQUIREMENTS

It is anticipated that approximately four concrete and two soil samples will be collected at the Riverland Rail Yard site for laboratory verification and validation. For this group of samples, the following QA/QC samples shall be collected: (1) one duplicate sample - concrete, (2) one split sample - concrete, and (3) one equipment blank sample shall be provided to verify the lot. The blank sample matrix will be silica sand.

At the homestead herbicide/pesticide site one composite soil sample will be collected for laboratory verification and validation. A split sample will also be collected.

A munitions cache hole soil sample will be collected for laboratory verification and validation. A split sample will also be collected.

Additional sampling may require additional QA/QC sample collections. The QA/QC sample quantity will be at the discretion of the field team leader.

6.0 MODIFICATIONS TO THE SAMPLING PLAN

Due to field conditions, the sample plan may require changes. Minor changes will require, at least, the verbal approval of the field team leader and the cognizant project engineer. In this situation, the field team leader will submit changes on the Sampling Project Change Form (Figure 1-2). An Engineering Change Notice (ECN) will be released per EP-2.2, Engineering Document Change Control (WHC 1988d), by the project engineer. The project file will contain a copy. Major changes to the plan will require lead regulatory agency concurrence on an approved Document Change Request Form.

Date: _____

Person Initiating Change: _____

Change: _____

_____

_____

_____

_____

_____

_____

Reason For Change: _____

_____

_____

_____

_____

_____

_____

APPROVAL:

Field Team Leader: _____

Cognizant Engineer: _____

Environmental QA Representative: _____

Figure 1-2. Riverland Expedited Response Action Project Sampling Plan Change Form.

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ATTACHMENT 2

QUALITY ASSURANCE PROJECT PLAN

CONTENTS

1.0 INTRODUCTION

The Quality Assurance Project Plan (QAPP) describes the QA requirements that support the Riverland ERA characterization activities. This QAPP presents the objectives, organizations, functional activities, procedures, specific QA/QC protocols associated with these activities.

2.0 PROJECT DESCRIPTION

The ERA characterization objective is to determine if any environmental hazards exist, their nature, and extent. Representative and specific locations will be investigated at the site.

Project plan Section 1.2 contains the site's description.

See project plan Sections 3.0 (Preliminary Identification and Screening of Alternatives) and 4.0 (Site Evaluation Tasks) for project objectives.

3.0 PROJECT ORGANIZATION AND RESPONSIBILITIES

Attachment 4 describes the overall management plan. QAPP responsibilities of key personnel and organizations are:

- Field Team Leader (Environmental Restoration Engineering)--Responsible for onsite direction of the sampling team in compliance with the requirements of this QAPP, the sampling plan, and all implementing EII.

- Cognizant QA Engineer (Environmental Quality Assurance)--The QA person is responsible for performing formal audits/surveillances to ensure compliance with QAPP requirements (WHC 1990).

- Office of Sample Management (OSM)--OSM is responsible for coordinating qualified and approved laboratory support for all project analyses concerns, assisting in sample shipment tracking, resolving chain-of-custody issues, and when requested validating all related data.

- Qualified Analytical Laboratories--Soil and gas samples shall be sent to an approved contractor, participant subcontractor, or subcontractor laboratory. They shall be responsible for performing the analyses identified in this plan in compliance with work order, contractual requirements, and approved procedures (see Section 5.0). Each laboratory shall have and comply with a written approved laboratory QA plan. All analytical laboratory work shall be subject to the surveillance controls invoked by QI 7.3, Source Surveillance and Inspection (WHC 1989). This plan will meet the appropriate requirements of the *Hanford Federal Facility Agreement and Consent*

Order (Ecology et al. 1991). OSM will retain prime responsibility for ensuring acceptability of offsite laboratory activities.

- Other Support Contractors--The project engineer may assign project responsibilities to other support contractors project responsibilities. Such services shall be in compliance with standard procurement procedures as discussed in Section 5.0. All work shall comply with approved QA plans and/or procedures.

4.0 QUALITY ASSURANCE OBJECTIVES FOR MEASUREMENT

The principal objective of the QAPP is to maintain the quality of field activities, sample handling, laboratory analysis, and to document each processing level.

The EPA devised an analytical level classification system (EPA 1987) that provides increased data quality as the scale increases. Level I consists of field screening methods. Level II entails more advanced onsite analytical techniques. Level III concerns standard laboratory program procedures. Level IV consists of EPA contract laboratory program procedures. Level V addresses specially developed procedures where standard methods are not available or requires a high degree of analytical sensitivity.

A site-specific analytical classification fulfills the EPA data quality goals. It consists of two data quality levels: (1) field or laboratory screening and (2) validated laboratory analyses (McCain and Johnson, 1990). Field or laboratory screening is equal to EPA levels I, II, and III. Validated laboratory analyses are equal to EPA levels IV and V.

The following is the analysis list of concern:

- Volatiles
- Diesel total petroleum hydrocarbons
- Nitrates
- Pesticides/herbicides
- Gamma spectrum.

5.0 SAMPLING PROCEDURES

All sampling activities shall be consistent with the current applicable WHC (1988b) procedures and the Riverland ERA sampling plan. These procedures are identified in the project field sampling plan. They include:

- EII 1.4, Instruction Change Authorizations

- EII 1.5, Field Logbooks
- EII 1.6, QA Records Processing
- EII 1.7, Indoctrination, Training, and Qualification
- EII 3.4, Field Screening
- EII 5.1, Chain of Custody
- EII 5.2, Soil and Sediment Sampling
- EII 5.5, 1706 KE Laboratory Decontamination of RCRA/CERCLA Sampling Equipment
- EII 5.11, Sample Packaging and Shipping.

As noted in Section 3.0, procured participant contractor and/or subcontractor services shall be subject to the following (WHC 1989):

- QR 4.0, Procurement Document Control
- QI 4.1, Procurement Document Control
- QI 4.2, External Services Control
- QR 7.0, Control of Purchased Items and Services
- QI 7.1, Procurement Planning and Proposal Evaluation
- QI 7.2, Supplier Evaluation
- QI 7.3, Source Surveillance and Inspection
- QR 17.0, Quality Assurance Records
- QI 17.1, Quality Assurance Records Control
- EII 1.6, QA Records Processing (WHC 1988b).

The procurement document shall specify that the contractor submit for review and approval prior to use all analytical procedures and their QA/QC program. All participant contractor or subcontractor procedures, plans, and/or manuals shall be retained as project quality records.

6.0 SAMPLE CUSTODY

Project samples shall be controlled per EII 5.1, Chain of Custody (WHC 1988b) from the point of origin to the analytical laboratory. Laboratory chain of custody procedures shall be reviewed and approved as required by procurement control procedures as noted in Section 5.0. The contractor shall ensure the maintenance of sample integrity and identification throughout the

analytical process. Offsite sample tracking will be performed by OSM procedure Sample Tracking (WHC 1992a and 1992b).

Results of analyses shall be traceable to original samples through a unique code or identifier. Samples will be assigned HEIS sample numbers. All results of analyses shall be controlled as permanent project quality records.

7.0 CALIBRATION PROCEDURES

Calibration of all critical measuring and test equipment, whether in existing inventory or newly purchased, shall be controlled as required by:

- QR 12.0, Control of Measuring and Test Equipment (WHC 1989)
- QI 12.1, Selection of Measuring and Test Equipment (WHC 1989)
- QI 12.2, Measuring and Test Equipment Calibration by User (WHC 1989)
- EII 3.2, Calibration and Control of Monitoring Instruments (WHC 1988b).

Routine field equipment operational checks shall be per applicable EII procedures. Similar information shall be provided in approved participant contractor or subcontractor procedures.

Participant contractor, or subcontractor laboratory analytical equipment calibrations shall be per applicable standard analytical methods. These shall be subject to review and approval.

8.0 ANALYTICAL PROCEDURES

Procedures based on the referenced methods shall be selected or developed, and approved before use in compliance with appropriate procedures and/or procurement control requirements as noted in Section 5.0.

9.0 DATA REQUIREMENTS

9.1 DATA REDUCTION AND DATA PACKAGE PREPARATION

All analytical laboratories shall be responsible for preparing a report summarizing the analysis results and a detailed data package. This includes all information necessary to perform data validation to the extent indicated by the minimum requirements of Section 9.2. Data shall be reported on a dry-weight basis. The data summary report format and data package content shall be defined in procurement documentation subject to review and approval as

noted in Section 5.0. As a minimum, laboratory data packages shall include the following:

- Sample receipt and tracking documentation, including identification of the organization and individuals performing the analysis, the names and signatures of the responsible analysts, sample holding time requirements, references to applicable chain of custody procedures, and the dates of sample receipt, extraction, and analysis
- Instrument calibration documentation, including equipment type, model, initial and continuing calibration data, method of detection limits, and calibration procedure used
- Additional quality control data, as appropriate for the methods used including matrix spikes, duplicates, recovery percentages, precision data, laboratory blank data, and identification of any nonconformance that may have affected the laboratory's measurement system during the analysis time period
- The analytical results or data deliverables, including reduce data, reduction formulas or algorithms, unique laboratory identifiers, and description of deficiencies
- Other supporting information, such as reconstructed ion chromatographs, spectrograms, traffic reports, and raw data.

All sample data shall be retained by the analytical laboratory and made available for systems or program audit purposes upon request by WHC, DOE-RL, or regulatory agency representatives (see Section 11.0). Such data shall be retained by the analytical laboratory through the duration of their contractual statement of work, at which point it shall be turned over to DOE-RL for archiving.

9.2 VALIDATION

The completed data package shall be reviewed and approved by the analytical laboratory's QA manager before submittal for validation. Validation of the completed data package shall be performed by qualified OSM personnel or other contract personnel. Validation requirements will be defined within the approved procurement document or data validation procedures (WHC 1992a).

For analyses performed by qualified laboratories, validation reports shall be prepared. The results of these analyses will be substantiated with checks as applicable per the analytical procedure.

9.3 FINAL REVIEW AND RECORDS MANAGEMENT CONSIDERATIONS

All validation reports and supporting analytical data packages shall be subjected to a final technical review by qualified reviewers at the direction of the project engineer. This will be done before data submittal to

regulatory agencies or inclusion in reports or technical memoranda. All validation reports, data packages, and review comments shall be retained as permanent project quality records in compliance with EII 1.6, QA Records Processing (WHC 1988b), and QA 17.0, Quality Assurance Records (WHC 1989). The project engineer will have the primary responsibility for dispositioning project related records and data.

10.0 INTERNAL QUALITY CONTROL

Sampling plan activities may be evaluated as part of the project's QC effort. All analytical samples shall be subject to in-process QC measures from the field to the laboratory and during laboratory processing. Laboratory analyses performance audits are implemented through the use of QA/QC samples sent to multiple laboratories. The data quality generated in this project will be operationally defined by the following internal QC sampling.

- Split samples shall be collected and submitted to separate laboratories for a measurement precision assessment
- Duplicate samples shall be collected and submitted to measure intralab precision
- Equipment blanks (matrix-silica sand) shall be prepared and submitted to assess sampling equipment cleanliness
- Laboratory internal quality control checks performed per applicable protocol for the analysis. For chemical analysis, this must include data demonstrating achieved accuracy, precision, system calibration, and performance. Reportables will include:
  - Preparation and calibration blanks
  - Calibration verification standards
  - Matrix spikes
  - Duplicates
  - Control samples
  - Other supporting documentation.

The minimum requirements of this section shall be invoked in procurement documents or work orders, compliant with standard procedures as noted in Section 5.0.

11.0 PERFORMANCE AND SYSTEMS AUDITS

Program activities are subject to oversight by QA personnel. Audits may address quality-affecting activities that include, but are not limited to, measurement system accuracy, intramural and extramural analytical laboratory services, field activities, and data collection, processing, validation, reporting, and management. The WHC QA audits will be performed under the standard operating procedure requirements of WHC (1989).

System audit requirements are implemented in accordance with Standard Operating Procedure QI 10.4, Surveillance (WHC 1989). All quality-affecting activities are subject to surveillance. The project engineer will interface with both the Environmental Field Services Quality Coordinator and the QA officer. The QA officer is responsible for providing independent formal audits/surveillances to ensure compliance with planned activities, and identify conditions adverse to or enhancing overall performance quality.

12.0 PREVENTATIVE MAINTENANCE

All measurement and testing equipment used in the field and laboratory that directly affect analytical data quality shall be subject to preventive maintenance measures that ensure minimization of measurement system downtime. Field equipment maintenance instructions shall be as defined by the approved procedures governing their use. Laboratories shall be responsible for performing or managing the maintenance of their analytical equipment; maintenance requirements, spare parts lists, and instructions shall be included in individual methods or in laboratory QA plans, subject to review and approval. When samples are analyzed using EPA reference methods, the preventive maintenance requirements for laboratory analytical equipment are as defined in the procured laboratory's QA plan(s).

13.0 DATA QUALITY INDICATORS

13.1 DATA ASSESSMENTS BY ANALYTICAL FACILITY

Adherence to approved procedures will be sufficient for the majority of data reports. To the extent possible, performance-based standards will be the preferred method of assessment for precision and accuracy measurements. A familiar example is the use of control charts. Values exceeding a 3-sigma limit on well-established and appropriate control chart should be flagged when reported. Samples in the analytical batch should be rerun if possible, and those results also reported.

When appropriate performance-based standards are not available and referenced procedures do not specify, the following two rules may be used.

- Precision--The difference between laboratory duplicates will be subject to a control limit of 150% of the requested limit whenever both sample values exceed the estimated method detection limit (MDL). If the estimated MDL exceeds the requested limit, the higher value may be used to calculate the control limit. When either or both duplicates are below the estimated method detection limit, laboratory precision may be assessed by comparing identically spiked samples. Samples exceeding five times the control limit can be subject to a 20% relative percent difference limit, where:

  $$\text{Relative percent difference} = \frac{(S - D) \times 100}{((S+D)/2)}$$

S = Sample concentration
D = Duplicate sample concentration
Failure to meet a precision limit will require evaluation and corrective action as appropriate.

- Accuracy will be defined by percent recovery data where

$$\% \text{ Recovery} = \frac{(\text{Spiked Sample Result} - \text{Sample Result})}{\text{Spike Added}} \times 100$$

When the sample result (SR) is less than the MDL, use SR=0 for the purpose of calculating the percent recovery. Spiked samples having concentrations two to five times greater of the requested detection limit or MDL will have recovery control limits of 50% to 150%. Spiked samples exceeding five times the estimated MDL will have recovery control limits of 75% to 125%. Failure to meet the control limit will require evaluation and corrective action as appropriate. Applicable samples not meeting the limit should be rerun using a postdigestion spike if possible. Postdigestion spikes should be made at two times the indigenous level or lower reporting limit, whichever is greater.

13.2 PROJECT LEVEL ASSESSMENTS

All data requested through OSM will be subject to validation procedures as previously described (Section 9.2). Completeness of requested analyses will be assessed and reported to the project engineer by OSM or subcontractor. The EPA guidance suggests 80% to 85% is a reasonable expectation (EPA 1987).

Summary statistics for measurement precision and accuracy shall be prepared in conjunction with the data analysis.

Precision evaluation at the project level will address interlaboratory precision. Precision of environmental measurement systems is often a function of concentration. This relationship should be considered before selecting the most appropriate form of summary statistic. Simplistically, this relationship can usually be classified as falling into one of the following three categories.

- Standard deviation (or range) is constant
- Coefficient of variation (or relative range) is constant
- Both standard deviation (or range) and coefficient of variation (or relative range) vary with concentration.

The pooled standard deviation or pooled coefficient of variation can be used to summarize data in bullets 1 and 2, respectively. Bullet 3 will require either graphical summary of the data or specialized regression techniques.

Data quality assessments are generally made at concentrations typical of the observed range in routine analyses. In some situations the typical value measurement will be below an estimated practical method, or instrument

detection limit (i.e., an engineering zero). If a standard exists (or is to be set) at some positive finite value, quality assessment summaries may be desired at that level rather than the most representative concentration.

14.0 CORRECTIVE ACTIONS

Corrective action requests required as a result of surveillance reports, nonconformance reports, or audit activity shall be documented and dispositioned as required by QR 16.0, Corrective Action; QI 16.1, Trend Analysis; and QI 16.2, Corrective Action Reporting (WHC 1989). Primary responsibilities for corrective action resolution are assigned to the project engineer and the QA officer. Other measurement systems, procedures, or plan corrections that may be required as a result of routine review processes shall be resolved as required by governing procedures or shall be referred to the project engineer for resolution. Copies of all surveillance, nonconformance, audit, and corrective action documentation shall be routed to the project QA records upon completion or closure.

15.0 QUALITY ASSURANCE PROJECT REPORTS

Special QA reports are not planned for this project. Project records will be maintained in conformance with standard operating procedure requirements of WHC (1988d). Project records will be maintained according to EII 1.6, QA Records Processing (WHC 1988b), and technical data will be dispositioned according to EII 1.11, Technical Data Management (WHC 1988b). Surveillance, nonconformance, audit, and corrective action documentation shall be routed to the project quality records upon completion or closure of the activity. The final report shall include an assessment of the overall adequacy of the total measurement system with regard to the data quality objectives of the investigation.

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ATTACHMENT 3

HEALTH AND SAFETY PLAN

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1.0 INTRODUCTION

The Riverland ERA Project will use "Site Specific Safety Documents" required by the *Environmental Investigations and Site Characterization Manual* (WHC 1988b). This will ensure all project activities are done safely. Environmental Field Services generates the required documents for the different project activities.

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ATTACHMENT 4

PROJECT MANAGEMENT PLAN

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1.0 INTRODUCTION

Overall project organization is the responsibility of the Westinghouse Hanford's Environmental Division, Environmental Remedial Action Group, 100/300 Remediation Section. Westinghouse Hanford management has assigned the project engineer and field team leader.

The field team leader will interface with Environmental Field Services, OSM, Traffic and Shipping, Operations Support Services, and other WHC organizations as necessary to perform field activities as directed by the project engineer.

The OSM shall be responsible for arranging laboratory support. All field activities are to be consistent with this project plan and applicable sections of WHC (1988a) and WHC (1988b).

Project team members shall include the project engineer, field team leader, sample and analytical personnel, operational support services personnel, health and safety officer, and QA personnel. All field personnel shall be familiar with the site-specific safety documents before starting field activities. The field team leader will be responsible to have a copy of the site-specific safety documents and applicable procedures available for field reference.

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ATTACHMENT 5

DATA MANAGEMENT PLAN

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1.0 INTRODUCTION

The data management plan will follow the Analytical Laboratory Data Management Section (EII 14.1, Rev. 0) of the *Environmental Investigations and Site Characterization Manual* (WHC 1988b).

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ATTACHMENT 6

COMMUNITY RELATIONS PLAN

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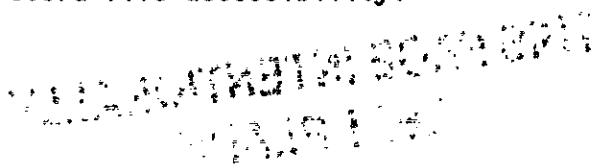
1.0 INTRODUCTION

A community relations plan (CRP) exists for the Hanford Site Environmental Restoration Program Activities (Ecology 1990). The CRP applies to the Riverland ERA. This CRP provides continuity and general coordination of all the Environmental Restoration Program activities concerning community involvement. The program-wide CRP discusses Hanford Site background information and community involvement and concerns. The CRP was prepared and implemented by DOE-RL, EPA, and Ecology.

The public will have a 30-day period to review and comment on the formal Riverland ERA proposal. In addition, the public is informed on ERA progress through quarterly public meetings, project fact sheets, and official ERA project administrative record file accessibility.



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List attachments.

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Impact Level: 3Q S

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	Yes	No
References Available to Intended Audience	[X]	[ ]
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Riverland ERA Project Plan, Rev. 1

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Name	MSIN	With Attachment	EDT/ECN & Comment	EDT/ECN Only
T. Davison	H4-16	X		
H. D. Downey	L4-96	X		
G. C. Henckel	H4-55	X		
C. E. Heiden	H4-55	X		
D. R. Baker	X7-02	X		
N. R. Kerr	N1-75	X		
R. C. Roos	H4-55	X		
D. G. Kachele	S4-67	X		
B. G. Tuttle	N3-06	X		
J. Vaughn	N3-06	X		
D. B. Tullis	L6-57	X		
Central Files	L8-04	X		
EDMC (2)	H4-22	X		